

Claims

1. A tilt rotor aircraft comprising:  
a fuselage;  
a wing member coupled to the fuselage;  
a pylon assembly pivotally coupled to the wing member;  
5 a transmission coupled to the pylon assembly;  
a prop rotor coupled to the transmission;  
an engine; and  
an engine mount system for supporting the engine comprising:  
an annular forward mount for coupling the engine to the transmission;  
10 and  
an aft mount for coupling the engine to the pylon assembly;  
wherein the contribution from the engine to the dynamic response of the tilt  
rotor aircraft is determined by selectively tailoring the physical characteristics of the  
forward mount.
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2. The tilt rotor aircraft according to claim 1, wherein the forward mount  
comprises:  
an annular base portion configured for coupling to the engine;  
an annular top portion configured for coupling to the transmission; and  
20 an annular flexure region.
3. The tilt rotor aircraft according to claim 2, wherein the contribution from the  
engine to the dynamic response of the tilt rotor aircraft is determined by selectively  
tailoring the physical characteristics of the flexure region.
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4. The tilt rotor aircraft according to claim 1, wherein the forward mount is  
configured to house an engine torquemeter.
5. The tilt rotor aircraft according to claim 1, wherein the forward mount is  
30 configured in the shape of a chalice.

6. A tilt rotor aircraft comprising:  
a fuselage;  
a wing member coupled to the fuselage;  
a pylon assembly pivotally coupled to the wing member;  
5 a transmission coupled to the pylon assembly;  
a prop rotor coupled to the transmission;  
an engine having a longitudinal axis; and  
an engine mount system for supporting the engine comprising:  
a forward mount for coupling the engine to the transmission; and  
10 an aft mount for coupling the engine to the pylon assembly;  
wherein torque from the prop rotor is prevented from being induced into the engine by the aft mount.
7. The tilt rotor aircraft according to claim 6, wherein the aft mount is a bipod  
15 disposed in a plane generally transverse to the longitudinal axis of the engine.
8. The tilt rotor aircraft according to claim 6, wherein the aft mount comprises:  
at least one pylon mounting bracket disposed on the pylon assembly;  
at least one engine mounting bracket disposed on the engine;  
20 a plurality of rigid links, each link being coupled to both the pylon mounting bracket and the engine mounting bracket, such that the links form a focal point located near the longitudinal axis of the engine.
9. The tilt rotor aircraft according to claim 6, wherein the aft mount is attached to  
25 the pylon assembly at two points and attached to the engine at one point, such that the aft mount forms a bipod assembly disposed in a plane generally transverse to the longitudinal axis of the engine.
10. The tilt rotor aircraft according to claim 6, wherein the aft mount is attached to  
30 the engine on an upper side of the engine.
11. The tilt rotor aircraft according to claim 6, wherein the aft mount comprises:  
a first mounting bracket attached to the pylon assembly;

a second mounting bracket attached to the engine;

a pair of parallel rigid plates, each plate being disposed in a plane generally transverse to the longitudinal axis of the engine, each plate being pivotally coupled at two points to the pylon assembly and at one point to the engine.

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12. An engine mounting system for use in rotorcraft having a rotor, a pylon assembly, a transmission coupled to the pylon assembly, and an engine, the engine mounting system comprising:

a forward mount for coupling the engine to the transmission; and

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an aft mount for coupling the engine to the pylon assembly;

wherein the contribution from the engine to the dynamic response of the rotorcraft is determined by selectively tailoring the physical characteristics of the forward mount.

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13. The engine mounting system according to claim 12, wherein the forward mount comprises:

an annular base portion configured for coupling to the engine;

an annular top portion configured for coupling to the transmission; and

an annular flexure region.

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14. The engine mounting system according to claim 12, wherein the forward mount defines a housing for an engine torque meter.

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15. The engine mounting system according to claim 12, wherein the forward mount is configured in the shape of a chalice.

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16. An engine mounting system for use in rotorcraft having a rotor, a pylon assembly, a transmission coupled to the pylon assembly, and an engine having a longitudinal axis, the engine mounting system comprising:

a forward mount for coupling the engine to the transmission; and

an aft mount for coupling the engine to the pylon assembly;

wherein torque from the rotor is prevented from being induced into the engine by the aft mount.

17. The engine mounting system according to claim 16, wherein the aft mount is a bipod disposed in a plane generally transverse to the longitudinal axis of the engine.

5 18. The tilt rotor aircraft according to claim 16, wherein the aft mount comprises:  
at least one pylon mounting bracket disposed on the pylon assembly;  
at least one engine mounting bracket disposed on the engine;  
a plurality of rigid links, each link being pivotally coupled to both the pylon  
mounting bracket and the engine mounting bracket, such that the links form a focal  
10 point located near the longitudinal axis of the engine.

19. The tilt rotor aircraft according to claim 16, wherein the aft mount is attached  
to the pylon assembly at two points and pivotally attached to the engine at one point,  
such that the aft mount forms a bipod assembly disposed in a plane generally  
15 transverse to the longitudinal axis of the engine.